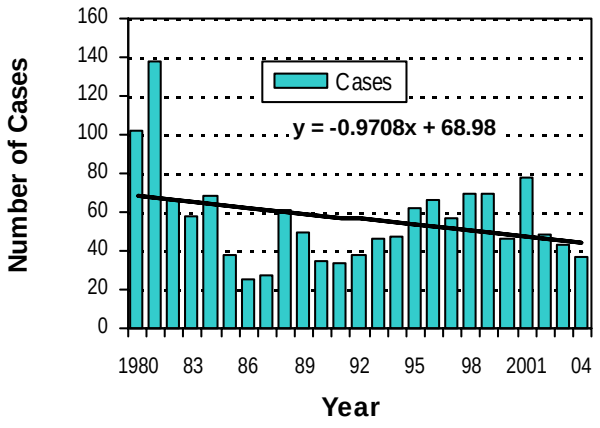
Meningococcal Infections

Neisseria meningitides (invasive disease) is a Class A Disease and must be reported to the state within 24 hours by calling the phone number listed on the website.

Meningococcal meningitis is an acute bacterial disease caused by *Neisseria meningitides*. It is characterized by sudden fever onset, intense headache, nausea and often vomiting, stiff neck and rash.

Cases of meningococcal invasive disease in Louisiana decreased during the eighties and then, steadily increased during the nineties from a low of thirty cases in 1990 to a high of seventy-four cases in 2001, with a decrease occurring in the last three years. (Figure 1)

Figure 1: Meningococcal meningitis trends Louisiana, 1988 to 2004

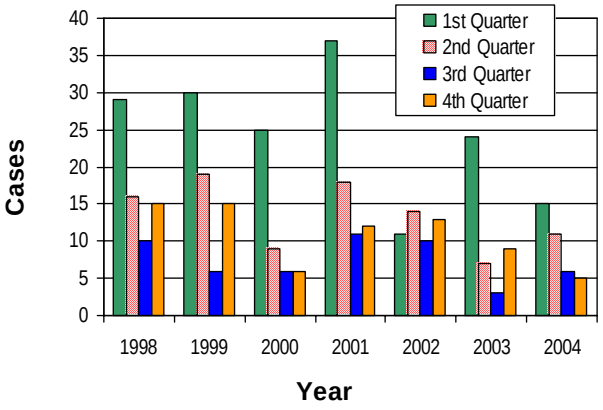


The incidence rate ranges from 0.8 to 1.6 per 100,000. This incidence is similar to US incidence which is around one per 100,000 per year.

Based on capsular polysaccharide there are five groups of meningococci. These groups are important to consider because of their epidemiologic, clinical and preventive importance. The three main groups observed in Louisiana are B, C and Y. Groups A and W135 are uncommon in the state. This is important because the quadrivalent vaccine available in the USA is effective only against A,C, Y and W135. It is ineffective against B, which represents about one-third of the cases in Louisiana.

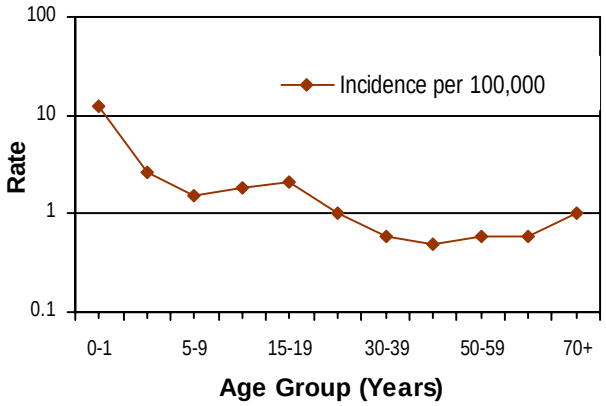
The seasonal trend in the number of cases shows a high peak during the first quarter of the year (January to March) during which approximately fifty percent of the cases reported, occur. The lowest number of cases is reported in the third quarter (July to September). (Figure 2)

Figure 2: Meningococcal meningitis cases by season - Louisiana, 1988-2004



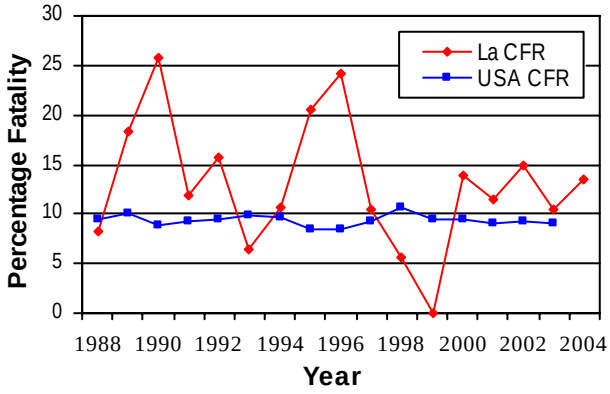
Infants (0-1 year of age) have the highest occurrence of new cases (10 per 100,000 cases per year). The incidence decreases to reach a low plateau of approximately 1.5 cases per 100,000 from ages five to nineteen, then decreases again to a low of 0.4 in the forty to forty-nine year age group. Disease incidence then rises slowly as age increases, with the rate being 1.1 in the older than seventy age group. (Figure 3).

Figure 3: Meningococcal meningitis average incidence by age - Louisiana, 1995-2004



The case fatality rate varies widely from between five percent to twenty-five percent from year to year (Figure 4).

Figure 4: Meningococcal meningitis case fatality rates – Louisiana vs U.S. 1988-2004



The Office of Public Health (OPH) laboratories began pulsed field gel electrophoresis (PFGE) testing of all strains of *N. meningitides* received since May 2001. PFGE identifies the specific strains of meningococci and allows tracking the progress of these strains throughout the year. It gives OPH the ability to identify the presence of specific strains in particular areas of the state and to issue warnings to medical providers and the public in these areas.

In 2001 one particular strain that persisted throughout the year proved to be particularly lethal (four deaths out of eight cases) and "resistant" to vaccine (two vaccine failures out of eight cases). Strains seemed to be limited to some areas of the state, and this particular strain was seen in the Greater New Orleans area and the Rapides (Alexandria) area.

Table 1. *N. meningitides* cases of lethal strain Louisiana, 2001

Date	Age	Sex	City	Parish	Comment	Fatality?
02/27/01	17	F	Laplace	St. John		Died
03/21/01	19	F	New Orleans	Orleans	University T	Died
03/26/01	12	M	Boyce	Rapides		Died
04/20/01	19	F	New Orleans	Orleans	University T Vacc	N
05/06/01	7	F	New Orleans	Orleans		N
10/29/2001	12	F	Pineville	Rapides		N
11/9/2001	19	F	New Orleans	Orleans	University T Vacc	Died
11/10/2001	19	F	Pineville	Rapides		N